

REMARKS

The Office examined claims 1-10, rejected claims 5 and 6 and objected to claims 1-4 and 7-10. With this paper, claims 1-5 and 7-10 are amended and claim 11 is added. Thus the application now includes 11 claims.

Claim Objections

Claims 1-10 are objected to due to various informalities. With this paper, claims 1-5, 7, 9 and 10 are amended primarily according to Examiner's suggestions. The applicant regrets for the errors and respectfully requests the objections be withdrawn. Please note that in claim 2, line 2, the phrase "reducing the total time offset into a remainder value" refers to a step recited in claim 1. Therefore, the word "a" should not be replaced with "said" as suggested by the Examiner. Please note that in claim 10, line 10, the second "the" is believed to be correct since the phrase "total time offset" has proper antecedent basis (see claim 10, line 3).

Please further note that the suggested changes to claim 10 at line 13 are believed to refer to line 15, however the suggested punctuation change (replace "," with -;- , and insert "and" at end of line) is believed to be incorrect and therefore has not been made.

Claim Rejections under 35 USC §103

The Examiner rejects the following claims under 35 USC §103(a):

- Claim 5 is rejected as being unpatentable over Loukianov (US Patent No. 6,580,730).
- Claim 6 is rejected as being unpatentable over Loukianov in view of the admitted prior art.

Claim 5 recites a device for triggering an uplink transmission in a cable modem, comprising: (1) means for receiving a number of time indicators received in a downlink direction, (2) time indicator offset counting means for generating a shifted time base which has an offset to a time base provided by the received time indicators, (3) a slot counter coupled to said time indicator offset counting means so as to synchronize itself to said shifted time base,

and (4) triggering signal generating means coupled to said slot counter for generating an uplink transmission triggering signal from a result given by said slot counter. (Emphasis added)

The Examiner asserts that all the elements of claim 5 are taught by Loukianov, except that Loukianov does not specifically disclose a slot counter that synchronizes itself to the shifted base time, as is in claim 5. However, the Examiner states that Loukianov discloses the adjustment of slot positions by a ranging procedure for each client to compensate for the delay in the medium (col. 5, ll. 38-43). Therefore, the Examiner states that “it would have been obvious ... that adjustment/compensation performed by Loukianov would have been capable of synchronizing to the shifted time base with the motivation of obtaining a controller device which can perform time critical tasks without an on board processor and accommodate the changing specification in the protocol without modification of the hardware.”

The applicant respectfully submits that the task of compensating for delays has been known and previous attempts have been made, for example, with the arrangement that the applicant describes as prior art in the application (see Figures 1-2b and the Background of the Invention section at pages 1-4). However, the mere fact that delays must be compensated for does not make the current invention obvious with regard to *how* the compensation is achieved. Loukianov fails to anticipate or suggest the central feature of claim 5, which is the synchronization of the local slot counter to the *shifted time base* instead of the time base derived from the received markers. There is no suggestion in Loukianov for the synchronization of the local slot counter to the shifted time base instead of the time base derived from the received markers. Without such a suggestion in Loukianov, one of ordinary skill in the art would not be motivated to use a shifted time base as disclosed and claimed in claim 5. Therefore, it is respectfully submitted that the synchronization device as claimed by the applicant in claim 5 is not obvious in view of Loukianov.

Claim 6 recites that a maximum counting range of the time indicator offset counting means (as in claim 5) is shorter than one time interval between successive time indicators. The Examiner asserts that this feature was taught in the prior art (Fig.1 of the application).

The prior art teaches a defined maximum range of the Absolute-Time-Offset and Time-Offset indicators that the actual transmission moment or the allocated uplink slot may be located anywhere within the 12 millisecond interval which lies symmetrically around reference point 102. The cable modem must be able to time its uplink transmission to any point of time within said 12 ms interval (p. 3, ll. 13-30).

The current invention establishes a timing principle where the timebase is determined by the regularly occurring time indicators (interval 1ms for DVB-RC or DAVIC 1.4 standards) in the downlink direction from a head-end. Like the prior art, the range within which the timing of any number of uplink transmissions must be determined symmetrically covers 6 time indicator intervals in the positive and negative directions from a certain zero point. However, the present invention does not define any particular time indicator as the zero point.

The present invention determines a certain shifted time indicator 302 and subsequent other shifted time indicators 303 which are the synchronization points for a shifted slot counter 304. The location in time of the shifted time indicator 302 in relation to the actually occurring time indicators 301 is such that between an immediately preceding actual time indicator 301 and the shifted time indicator 302 there is an offset interval that is shorter than one millisecond. If the total offset value is zero, the shifted slot counter is synchronized to the actually occurring time indicators 301. If the total offset value is positive, the offset interval is equal to the decimal remainder of the total offset value. If the total offset value is negative, the offset interval is equal to one minus the absolute decimal remainder of the total offset value. (p. 7, ll. 6-37 and Fig.3). Therefore, as recited in claim 6, a maximum counting range of the time indicator offset counting means is shorter than one time interval between successive time indicators.

Based on the above observations, the invention as claimed is not suggested by the admitted prior art. The applicant respectfully requests the rejection of claims 5 and 6 be reconsidered and withdrawn.

Allowable Subject Matter

The Examiner indicates that claims 7-9 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. With this paper, claim 7 and 8 are amended to become independent claims. Claim 9 is originally dependent from claim 8 and it remains as a dependent claim from same. The applicant respectfully requests the objections to claims 7-9 be reconsidered and withdrawn and that these claims be allowed.

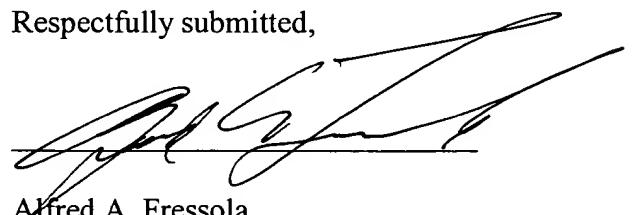
New Claim

New claim 11 is submitted directed to a computer program product. It is similar in scope to claim 5 and for similar reasons as presented above with respect to claim 5, claim 11 is believed to be distinguished over the cited art.

Conclusion

For all the foregoing reasons it is believed that all of the claims of the application are now in condition for allowance, and their passage to issue is earnestly solicited. Applicant's attorney urges the Examiner to call the undersigned attorney to discuss the present response if there are any questions.

Respectfully submitted,



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Ware, Fressola, Van Der Sluys &  
Adolphson LLP  
755 Main Street, P.O. Box 224  
Monroe, CT 06468-0224  
Tel: (203) 261-1234  
Cust. No.: 004955

Alfred A. Fressola  
Attorney for the Applicant  
Registration No. 27,550